CHAPTER 2

LITERATURE REVIEW

Several groups have reported a risk of fetal macrosomia in pregnancies with maternal glucose intolerance which is intermediate between gestational diabetes and normal glucose tolerance. Schafer-Graf UM et al (1998). reported that the outcome of pregnancies with one abnormal value in the glucose tolerance test or impaired glucose tolerance test (IGTT) was different from those with normal GTT. Regarding fetal growth, rates of macrosomia were approximately twice as high in groups with IGTT and gestational diabetes (21% and 24%) compared to women with normal GTT (11%). Newborn with lowered blood glucose was significantly more common in the IGTT than in the control group (49% vs. 34% of infants) and intermediate in the gestational diabetes group (40%). Lindsay MK, Graves W, Klein L (1989) reported that the incidence of macrosomia was significantly greater in the IGTT group (18.0%) than in the normal GTT group (6.6%). Berkus MD, Langer O (1993) concluded that patients with one or more abnormal GTT values had comparable incidences of macrosomia infants, which were all significantly greater than that in the 0- abnormal group (23-27% versus 13%). Because the criteria in diagnosis gestational diabetes is abnormal of GTT $\geq$ 2 value , then IGTT of the pregnant seemed not to be suitable for antenatal care. Also Neiger R, Coustan DR (1991) studied one hundred six patients who had abnormal results of diabetes screening tests and whose glucose tolerance test had one abnormal value underwent repeated glucose tolerance testing at an average of 4.6 weeks later. Thirty-six patients (34%) had two abnormal values on the repeated test and were classified as having gestational diabetes. That is why the patients whose glucose tolerance test had one abnormal value should be closely follow up.

The other reason that the screening test should be done as an extra screening at 32 weeks of pregnancy because there are some reports such as, Benjamin F et al (1986) reported 101 patients from a high risk population had the screening test in the first trimester and GTT in the second and third trimesters. Follow up GTT in the second trimester revealed only 25% instead of 88% of the gestational diabetic patients uncovered by the positive screening tests. The authors suggest that the screening for gestational diabetes should include follow up with a third trimester GTT on all patients who have positive screening tests even in the presence of normal follow up second trimester GTT. Watson WJ (1989) reported from his study that forty-four patients (8.0%) with a negative test at 28 weeks had a subsequent positive test at 34 weeks, so concluded that rescreening later in pregnancy is indicated. Bhattacharya SM (2002) reported the screening test of 100mg%-139mg% in first and second trimester should be repeated in third trimester because 23% of the patients in this group (51.7% of 458 cases of the studied group) turned to be gestational diabetes.

On the other hand there are many reports that disagree with all of the above information such as Lao TT, Tam KF (2001) studied clinical significance of gestational diabetes diagnosed in the third trimester and concluded that gestational diabetes diagnosed in the last trimester is associated with increased risk of pregnancy induced hypertension and shortened length of gestation, and this is likely to reflect a pathological process rather than the physiological effect of pregnancy on maternal glucose tolerance. Roberts RN et al (1993) reported that there was no significant difference in the incidence of antenatal complications between mothers with normal and IGTT. There was a higher rate of induced labor ($p < 0.05$) and caesarean section ($p < 0.01$) in the IGTT group compared to the normal group, but no difference in fetal outcome or newborn morbidity. Jensen DM et al (2003) concluded that prepregnancy overweight and obesity is associated with adverse pregnancy outcome in glucose tolerant women. So the maternal impaired glucose tolerance test may not be the factor for adverse outcome of pregnancy.

In economic point of view there are many studies about cost – effectiveness analysis of gestational diabetes in various aspects such as the quantity of glucose (Poncet B et al, 2002), level of blood glucose level as the criteria for diagnosis (Larijani B et al ,2003), 50 gm. glucose challenge test compare with 100 gm. glucose tolerance test (Coustan DR ,1994) etc. There was only one study about the optimum time in screening (Jovanovic L et al ,1985). The authors reported that women (N = 300) were screened at three periods : 9-20 wk, 27-31 wk, and 33-36 wk. An additional group of 300 women were screened at two periods : 27-31 wk and 33-36 wk. The prevalence of gestational diabetes in this group was 3.2%. The optimum timing for screening for highest yield was 27-31 wk. Retesting at 33-36 wk appeared cost effective if (1) maternal age was greater than or equal to 33 yr, (2) a positive screen was present at 27-31 wk, and (3) the mother was obese (greater than 120% ideal body wt).

From the above controversial issues that was the rational to study the need for the extra test in BMA Medical College and Vajira Hospital Practical Guideline in Diagnosis Gestational Diabetes compare to the standard screening recommended by American Diabetic Association and seeing how much benefit or loss received.